

## CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A method comprising:  
identifying data required by each of at least two stages of a partitioned program,  
wherein at least one of said stages comprises more than one thread, and which data is  
defined in a previous stage; and  
providing for transmission of said required data between consecutive stages.
2. The method according to Claim 1, wherein said providing for transmission comprises:  
putting each piece of required data into a pipe following a point immediately following  
its definition in a stage in which it is defined; and  
getting from said pipe each piece of data required by a subsequent stage at a point in the  
subsequent stage that corresponds to the point at which the piece of required data was  
put into the pipe.
3. The method according to Claim 1, wherein said providing for transmission comprises:  
placing into a pipe, at an end of each stage, data required for a subsequent stage of said  
program; and  
getting from said pipe, at a beginning of each stage, data required for that stage and  
defined in a previous stage.
4. The method according to Claim 1, wherein said identifying data required comprises:  
determining required data based on conditional statements in said program.
5. The method according to Claim 1, wherein said identifying data required comprises:  
rendering said program such that definitions of live data in one or more stages in which  
they are initially defined and their uses in subsequent stages are made explicit by  
introducing an alternative representation of each piece of live data following its  
definition and substituting said alternative representation for each subsequent occurrence  
of said piece of live data in said program.

6. The method according to Claim 5, wherein said identifying data required further comprises:  
making one or more pairwise determinations as to whether pieces of live data interfere.
7. The method according to Claim 6, wherein said making one or more pairwise determinations comprises:  
determining that two pieces of live data interfere if a path taken through the program, considering all stages, from a use of a first piece of live data leads to a definition of a second piece of live data.
8. The method according to Claim 6, wherein said identifying data required further comprises:  
forming an interference graph; and  
applying a graph coloring algorithm to said interference graph to obtain a colored interference graph.
9. The method according to Claim 8, wherein said identifying data required further comprises:  
inserting, for each piece of live data in said colored interference graph having a particular color, a definition of a new piece of data, said definition being inserted immediately following an initial definition of the piece of live data; and  
substituting the new piece of data for each occurrence in the program of said piece of live data subsequent to said definition of the new piece of data.
10. A machine-accessible medium containing instructions that, when executed by a computing platform, cause said computing platform to perform a method comprising:  
identifying data required by each of at least two stages of a partitioned program, wherein at least one of said stages comprises more than one thread, and which data is defined in a previous stage; and  
providing for transmission of said required data between consecutive stages.

11. The machine-accessible medium according to Claim 10, wherein said providing for transmission comprises:  
putting each piece of required data into a pipe following a point immediately following its definition in a stage in which it is defined; and  
getting from said pipe each piece of data required by a subsequent stage at a point in the subsequent stage that corresponds to the point at which the piece of required data was put into the pipe.
12. The machine-accessible medium according to Claim 10, wherein said providing for transmission comprises:  
placing into a pipe, at an end of each stage, data required for a subsequent stage of said program; and  
getting from said pipe, at a beginning of each stage, data required for that stage and defined in a previous stage.
13. The machine-accessible medium according to Claim 10, wherein said identifying data required comprises:  
determining required data based on conditional statements in said program.
14. The machine-accessible medium according to Claim 10, wherein said identifying data required comprises:  
rendering said program such that definitions of live data in one or more stages in which they are initially defined and their uses in subsequent stages are made explicit by introducing an alternative representation of each piece of live data following its definition and substituting said alternative representation for each subsequent occurrence of said piece of live data in said program.
15. The machine-accessible medium according to Claim 14, wherein said identifying data required further comprises:  
making one or more pairwise determinations as to whether pieces of live data interfere.

16. The machine-accessible medium according to Claim 15, wherein said making one or more pairwise determinations comprises:  
determining that two pieces of live data interfere if a path taken through the program, considering all stages, from a use of a first piece of live data leads to a definition of a second piece of live data.
17. The machine-accessible medium according to Claim 15, wherein said identifying data required further comprises:  
forming an interference graph; and  
applying a graph coloring algorithm to said interference graph to obtain a colored interference graph.
18. The machine-accessible medium according to Claim 17, wherein said identifying data required further comprises:  
inserting, for each piece of live data in said colored interference graph having a particular color, a definition of a new piece of data, said definition being inserted immediately following an initial definition of the piece of live data; and  
substituting the new piece of data for each occurrence in the program of said piece of live data subsequent to said definition of the new piece of data.
19. An apparatus comprising:  
at least two processing platforms, each of said processing platforms comprising more than one processor, each processing platform adapted to execute a stage of a partitioned program, and different ones of said processors of said processing platform adapted to execute a different parallel thread of said stage of said partitioned program; and  
at least one data transmission path linking at least two of said processing platforms, wherein at least one piece of data required by at least one subsequent stage of said partitioned program is transmitted through at least one said data transmission path.
20. The apparatus according to Claim 19, further comprising:  
a processor adapted to determine which pieces of data are required to be transmitted through at least one said data transmission path.

21. The apparatus according to Claim 20, wherein said processor adapted to determine is adapted to determine which pieces of data are required to be transmitted through at least one said data transmission path by analyzing whether pieces of data interfere with each other.
22. The apparatus according to Claim 19, further comprising:  
at least one memory coupled to at least one of said processing platforms.